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Attorney's Docket No.: 10886-045001 / TSRI 655.1/
SCR 2232P

REMARKS

Status of the Claims

Pending claims

Claims 1 to 13 are pending.

Claim added in the amendment

Claims 14 to 23 are added in the instant amendment. Thus, after entry of the instant amendment, claims 1 to 8 and 14 to 23 will be pending and under consideration.

Restriction Requirement and Election

In the restriction requirement dated October 3, 2001, the Patent Office alleged that the pending claims of the application were directed to three separate and distinct inventions under 35 U.S.C. §121:

Group I: Claims 1-8, drawn to computer-implemented methods of generating a 3-D representation of a target sequence wherein the entire target sequence is listed, classified in Class 702, subclass 19.

Group II: Claims 9-11, computer-implemented methods of generating a 3-D representation of a target sequence wherein identity constraints, 2-D constraints, and tertiary constraints are used, classified in Class 702, subclass 19.

Group III: Claims 12-13, drawn to computer-implemented methods of generating a 3-D representation of a target sequence wherein an alignment of the target sequence with another sequence is used, classified in Class 702, subclass 19.

In response to the Restriction Requirement, Applicants elected Group I, claims 1 to 8, drawn to computer-implemented methods of generating a 3-D representation of a target sequence wherein the entire target sequence is listed, classified in Class 702, subclass 19.

Outstanding Rejections

Claims 1 to 8 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by Ladner, U.S. Patent No. 4,881,175. Applicants respectfully traverse all outstanding objections to the specification and rejections of the claims.

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Support for the Claim Amendments

The specification sets forth an extensive description of the invention in the new claims. Support for claims directed to methods wherein representations of side chains of amino acid residues are converted to interaction centers can be found, inter alia, on page 10, lines 3 to 15. Support for claims directed to methods wherein interaction centers comprise a pseudoatom representing a center of mass of a side chain can be found, inter alia, on page 10, lines 3 to 15.

Issues under 35 U.S.C. §102(b)

Claims 1 to 8 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by Ladner, U.S. Patent No. 4,881,175 (hereinafter Ladner).

The Patent Office alleges that Ladner reports a computer-based system to determine and display the chemical structures of a protein or polypeptide chain and display this structure three-dimensionally. The Patent Office describes Ladner as using a database that includes a large number of solved polypeptide three-dimensional structures. The Patent Office further describes the disclosure of Ladner as aligning the peptides and generating a 3-D structure. This structure is represented to the user using computer graphics.

Claim 2 is alleged anticipated by Ladner's disclosure of directing the computer to rotate and translate a select number of atoms in a peptide and placing the atoms selected at the center to be used as the origin, and finally, using constraints to obtain the best representation of the three-dimensional structure.

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The Patent Office alleges that Ladner includes the limitation of claim 3 where Ladner reports constraints applied to interactions and computations being made on interactions. The Patent Office continues that the 3-D structures are ranked according to requirements set by the user and then outputted to a computer and allegedly meeting the limitations of claims 4-6.

The Patent Office then characterizes the Ladner disclosure as reporting storage, retrieval and display of a target protein to allegedly anticipate claim 7. It was alleged that that inputting alignments into a computer and retrieving them is reported by Ladner.

The legal standard for anticipation under 35 U.S.C. §102 is one of strict identity. To anticipate a claim, a single prior source must contain each and every limitation of the claimed invention.

Ladner reports a computer based system and method that determines and displays possible chemical structures for converting two naturally aggregated but chemically separated polypeptide chains into a single polypeptide chain which will fold into a three dimensional structure very similar to the original structure made of the two polypeptide chains.

In contrast, Applicants' claimed invention is directed to computer-based methods for determining a three-dimensional structure of a target amino acid sequence, such as a polypeptide or a fragment of a polypeptide. In one aspect, the methods of the instant claimed invention by way of executable code comprise directing a processor to produce from an alignment a three-dimensional reduced protein model comprising representations of side chains of amino acid residues comprising a target protein. Thus, Ladner is not a single prior source that contains each and every limitation of the claimed invention. Accordingly, the rejection under section 102(b) for the claimed methods can be properly withdrawn.

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Both before and after the above changes, the invention was described in full, clear, concise, and exact terms and met all conditions for patentability under 35 USC 101 et seq. Accordingly, the scope of the claims of any resulting patent (and any and all limitations in any of said claims) shall not under any circumstances be limited to their literal terms, but are intended to embrace all equivalents. Under no circumstances whatsoever may the pending claims be interpreted as:

1. having been altered in any way for any reason related to patentability;
2. having been narrowed;
3. a concession that the invention as patented does not reach as far as the original, unamended claim;
4. a surrender of any subject matter as a condition of receiving a patent; and/or,
5. estopping applicants from asserting infringement against every equivalent, whether now known or later developed, foreseen or unforeseen.

CONCLUSION

In view of the foregoing amendment and remarks, it is believed that the Examiner can properly withdraw the rejection of the pending claims under 35 U.S.C. §102(b). Applicants believe all claims pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If necessary, please apply additional and necessary charges, and apply all credits, to Deposit Account No. 06-1050.

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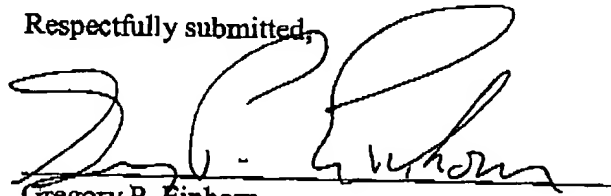
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If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (858) 678-5070.

Respectfully submitted,

Date:

Oct. 22, 2002



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VERSION TO SHOW MARKINGS/CHANGES

Claims 14-23 are new.